to those of the pharynx. In addition to these features, there was in this case the great contraction of the pupils; a symptom which, when present, would seem to indicate that the nucleus of the third pair, which presides over the movements of the iris, was implicated as well as the motor nucleus of the trigeminal.

Villar found that the average period of incubation in the twenty-eight cases which he analyzed equalled nine days. In this case it was impossible to determine this point. The total duration in this instance was ten or eleven days.

As regards the explanation of the paradoxical combination of paralysis with tetanic symptoms, no post-mortem lesions have been discovered in any case which can explain the matter. The least improbable of hypotheses is that tetanus is an infectious malady, and that the soluble products of the bacillus, the toxines, act upon the nerve-centres. It may be that the same substance acts differently upon different nerves, producing here spasm and there paralysis. Or it is possible that the bacillus produces more than one alkaloid; one of which produces spasm, and another paralysis.

ON INTESTINAL ANTISEPSIS.

CANTANI (*Wien. med. Woch.*, 1890, No. 21, 851) says that there are two ways to render innocuous the living germs of disease in the intestine—*i. e.*, either *per os* or *per anum.* For use in the first method only such substances can be employed which will pass the stomach unchanged. Calomel has been shown to be useful in this way in the case of simple fermentative processes, but useless in cases of longer infection. Charcoal, naphthalin, salicylate of bismuth, and iodoform, have also been employed. These substances exert an antiseptic influence on the intestinal contents, it is true, but, on account of their insolubility, are unable to influence the intestinal wall itself; and experience shows that they possess no power over the course of typhoid fever. It is clear that the administration by the mouth of soluble disinfectants, capable of being absorbed in the intestine, or of undergoing decomposition there—as carbolic acid, sublimate, etc.—can never fulfil the purpose of a thorough intestinal antisepsis; for, apart from the fact of the smallness of the dose which the human economy will tolerate, the greater part of the substance is absorbed in the stomach, and the remainder reaches the intestine in so altered a condition that its antiseptic power is more or less lost.

Through the anus is, therefore, the only, as it is the best, way left us to bring antiseptic substances directly into contact with the germs of disease. That large injections will pass the ileo-cæcal valve, has been repeatedly proven by experiments. The advantages of this method are: that the mechanical irritation produced by any powder is done away with, that the stomach is spared all mechanical or chemical action, that there is a more direct contact of the drug with the diseased portion of the intestine, and that greater doses of a saturated solution may be employed than can be introduced through the stomach. The method possesses secondary actions not to be undervalued. Thus, the bodily temperature can be reduced by the use of cold injections, or raised by hot fluids, or the intestine may be washed out and large amounts of bacteria and ptomaïnes removed.

Of substances to be employed for intestinal antisepsis, those most to be preferred are tannic acid and carbolic acid. Sublimate has no disinfecting action, on account of the combinations which it forms with albumen in the bowel. Tannic acid fulfils the double indication of a rational intestinal antisepsis, namely, paralyzing the vegetative activity of the bacteria, and the rendering innocuous the poisonous ptomaïnes formed there. Experiments have shown this, and actual clinical experience amply confirms it. There is nothing better than tannic acid enteroclysis in all forms of intestinal catarrh produced by bacteria, and accompanied by fermentation. The addition of gum Arabic is desirable in dysentery when the bowel is irritated. In case of great tenderness an injection of one to one and a half quarts of oil is of advantage, occasionally alternated with enemata of tannic acid. In typhoid fever enteroclysis is a valuable method; the meteorism and diarrhœa rapidly diminishing, and the disease running a favorable course. In the very earliest stages of the disease it even seems possible to exercise an abortive action upon the commencing typhoid infection in the intestine.

ON THE AMŒBA COLI IN DYSENTERY AND IN DYSENTERIC LIVER ABSCESS.

OSLER (*Johns Hopkins Hosp. Bull.*, May, 1890) reviews the literature relating to the discovery of and investigations concerning the *Amœba coli*. The most extended observations have been made by Kartulis, who found these organisms in every instance in the stools of 500 cases of dysentery, while in 12 autopsies the amœbæ were present in every case. He extended his observations, too, to liver abscess due to dysentery, finding the parasite in every case which he examined. Massiutin has also made studies upon the organisms, finding them identical with those described by Kartulis, though not agreeing entirely with him regarding their etiological connection with the disease.

Osler reports the case of a man who had had several attacks of chronic dysentery, and finally developed an abscess of the liver. The abscess was opened, and the amœbæ found in the pus in large numbers up to the date of the patient's death, as well as in the stools. The amœbæ from the liver ranged from 10 μ to 20 μ in diameter. They were circular or ovoid when at rest, but when in motion presented the extremely irregular contour of moving amœboid bodies. The protoplasm could be distinctly differentiated into a translucent homogeneous ectosarc, and a granular endosarc containing the nucleus, granules, and vacuoles. The processes seen during movement were always rounded, never angular or linear as in the white blood-corpuscles. Though the movements were sometimes slight, many examples were seen in which they were quite as striking as in the large active forms of pond amœbæ.

The character of the stools varied considerably. Sometimes there was a large, fluid, brownish evacuation, with little or no mucus, but more often three or four ounces were passed at a time, and blood and small whitish sloughs were seen scattered through this. Sometimes the stools were composed chiefly of mucus. Experience showed that the amœbæ were rarely found in the brownish stools. In the mucus they were more frequent, but